Basewide Groundwater Monitoring Program Optimization Working Meeting

Hunters Point Naval Shipyard

April 26, 2012

Topics

- BGMP optimization strategy
- Technical approach
- Future optimizations in other areas at HPNS
- Optimize - Parcel D-1 and G monitoring program

Optimization Strategy

- Optimize wellfields and analytical requirements to provide data to support the current/future investigations, treatability studies, remediation, and LTM projects

- The timing of optimizations will reflect logical opportunities within the CERCLA process:
  - Prior to and in conjunction with preparation of RAMPs/other documents containing a monitoring program
  - Periodically during the implementation of cleanup actions to monitor the performance of the remedy

Technical Approach

- Identify the project phase, monitoring objectives, and data requirements for a plume or area:
  - Investigation/Treatability Study
  - Remedial action performance monitoring
  - Landfill detection monitoring
- Assemble and review site data:
  - Concentrations, extent of contamination
  - Plume migration
- Identify changes in site conditions
  - Groundwater flow direction/velocity
  - Land use and human/ecological receptors

Technical Approach

- Evaluate the wellfield configuration for the capability to identify potential plume migration and quantify contaminant concentration trends:
  - Modify wellfield if the extent of contamination has changed (add or delete wells)
  - Identify/eliminate wells that provide spatially redundant data
  - Assess relationship of contaminant concentrations to Remediation Goals, Trigger Levels, or other action limits
- Has a sampling duration been specified in a CERCLA document? If so, does it remain appropriate?
- Are the analyses performed consistent with the current and future data requirements of the project?
- Do the Bay Margin Monitoring wells remain appropriate?

Optimization Schedule

- Parcels B, D-1, G, UC-2
  - Prior to 3Q 2012 (see final slide for schedule details)
- Parcel C
  - Support current pre-Remedial Action investigations; optimize at Remedial Design/RAMP phase
- Parcel E
  - Support current pre-Remedial Action investigations and TCRAs; optimize at Remedial Design/RAMP phase
- Parcel E-2
  - Landfill monitoring; optimize at Remedial Design/RAMP phase

Optimization of Parcels D-1 and G

Groundwater data needs:

Post-treatability study monitoring to evaluate effectiveness of ZVI injections conducted in 2008 to address VOCs and hexavalent chromium, for the following plumes:

- IR-09 North VOC and Hexavalent Chromium Plumes
- IR-33 VOC Plume
- IR-71 East and West VOC Plumes

- VOC concentration data to allow comparison to Remediation Goals (residential exposure scenario)
- Metals concentrations to allow comparison to Trigger Levels
- Data from Bay Margin Monitoring Wells (metals) in D-1

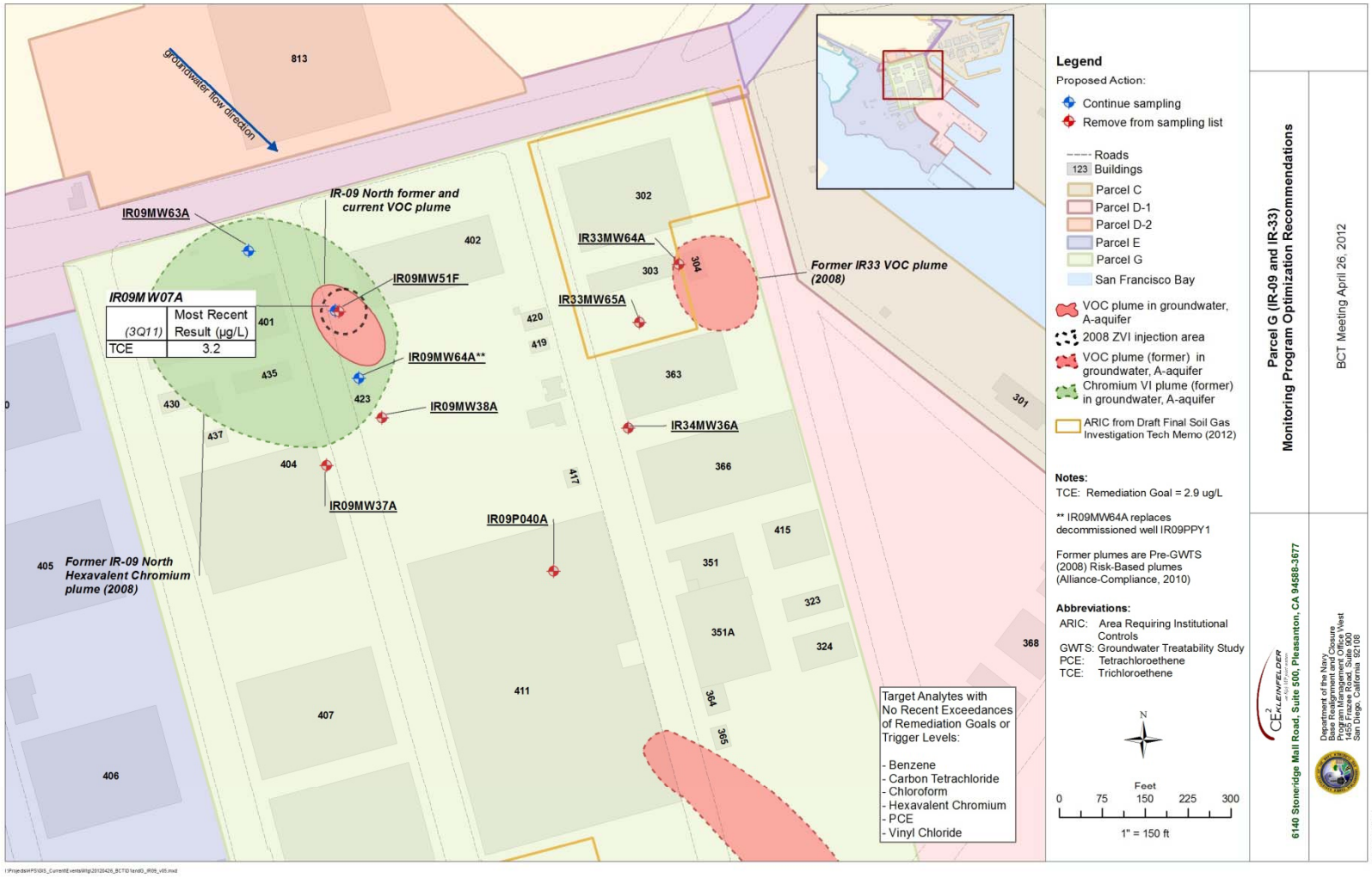
Current Monitoring Program: Parcels D-1 and G

- Groundwater samples are collected semi-annually from 27 monitoring wells (24 plume monitoring wells, 3 Bay Margin Monitoring Wells)
- Analyses for Contaminants of Concern (COCs) in Plume Monitoring Wells:
  - Benzene
  - Chloroform
  - Carbon Tetrachloride
  - Hexavalent chromium
  - Naphthalene
  - Trichloroethene (TCE)
  - Tetrachloroethene (PCE)
  - Xylenes
  - Vinyl chloride
- All COCs now consistently below Remediation Goals and/or Trigger Levels except TCE and PCE

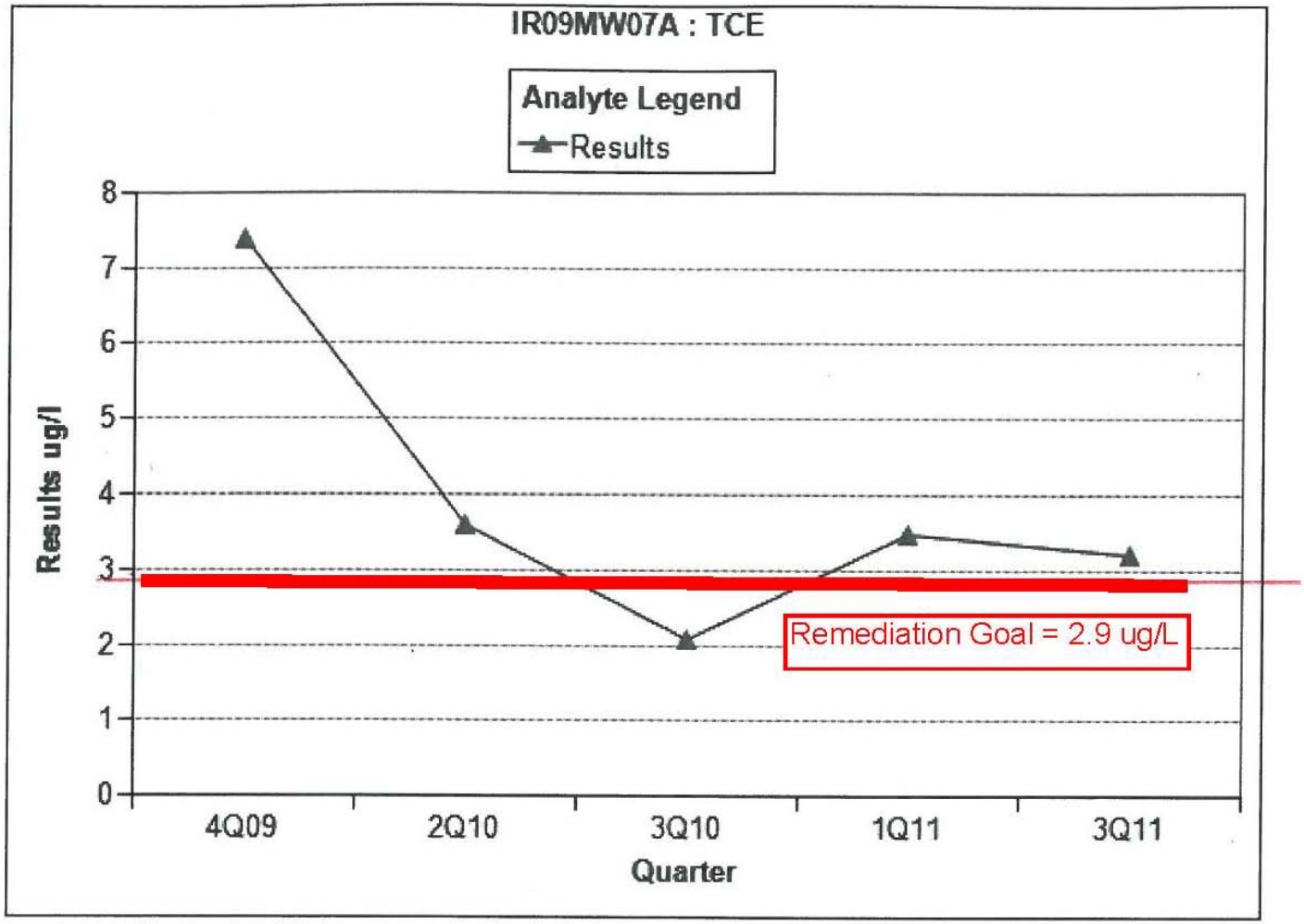
Current Monitoring Program: Parcels D-1 and G (continued)

- Analyses in Bay Margin Monitoring Wells:
  - Copper
  - Hexavalent Chromium
  - Lead
  - Mercury
  - Nickel
  - Selenium
  - Silver
  - Zinc
- No exceedances of Trigger Levels in any wells

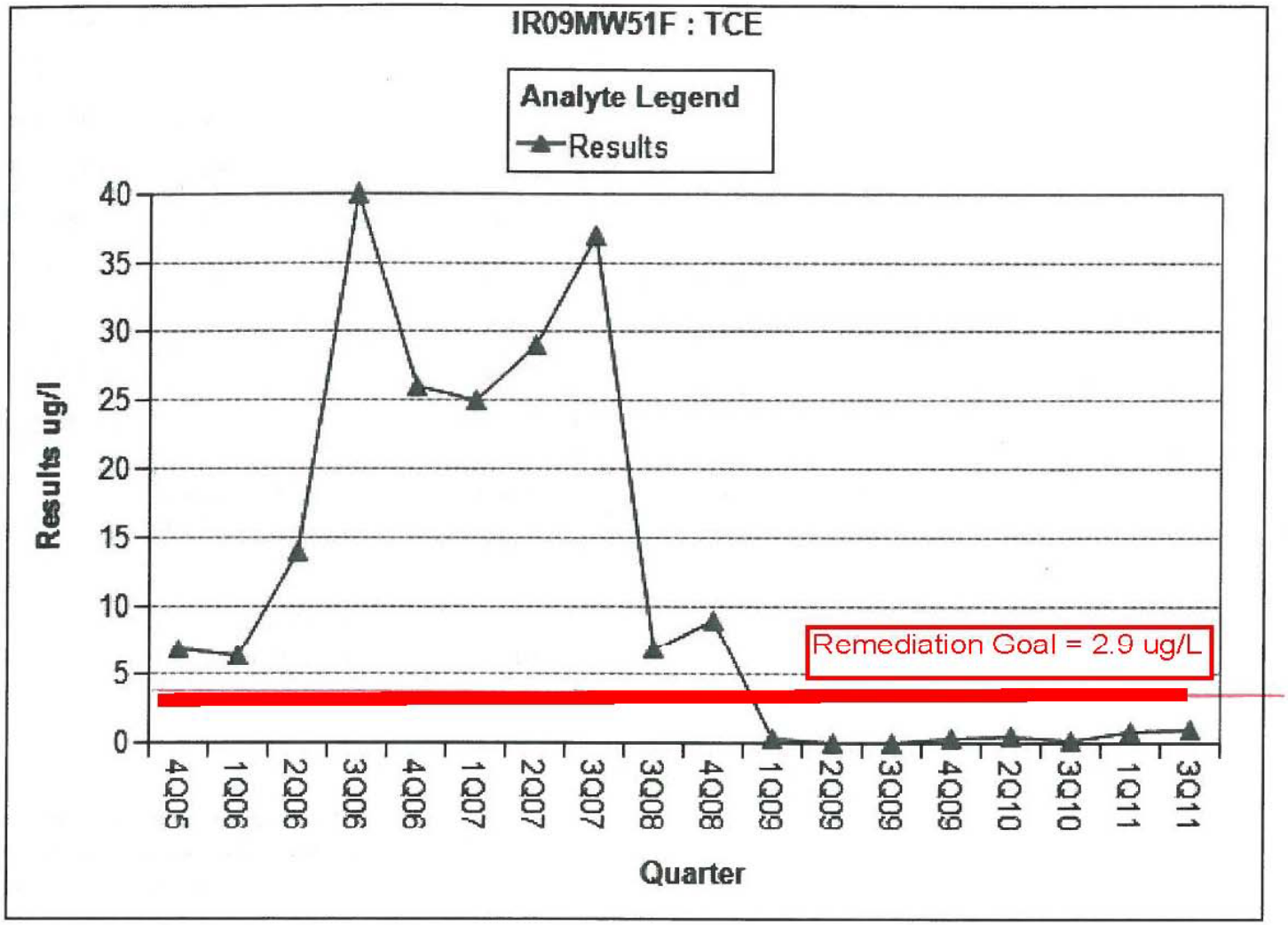
IR-09 and IR-33 Plumes



Time-Series Plot of TCE in Well IR09MW07A



Time-Series Plot of TCE in Well IR09MW51F



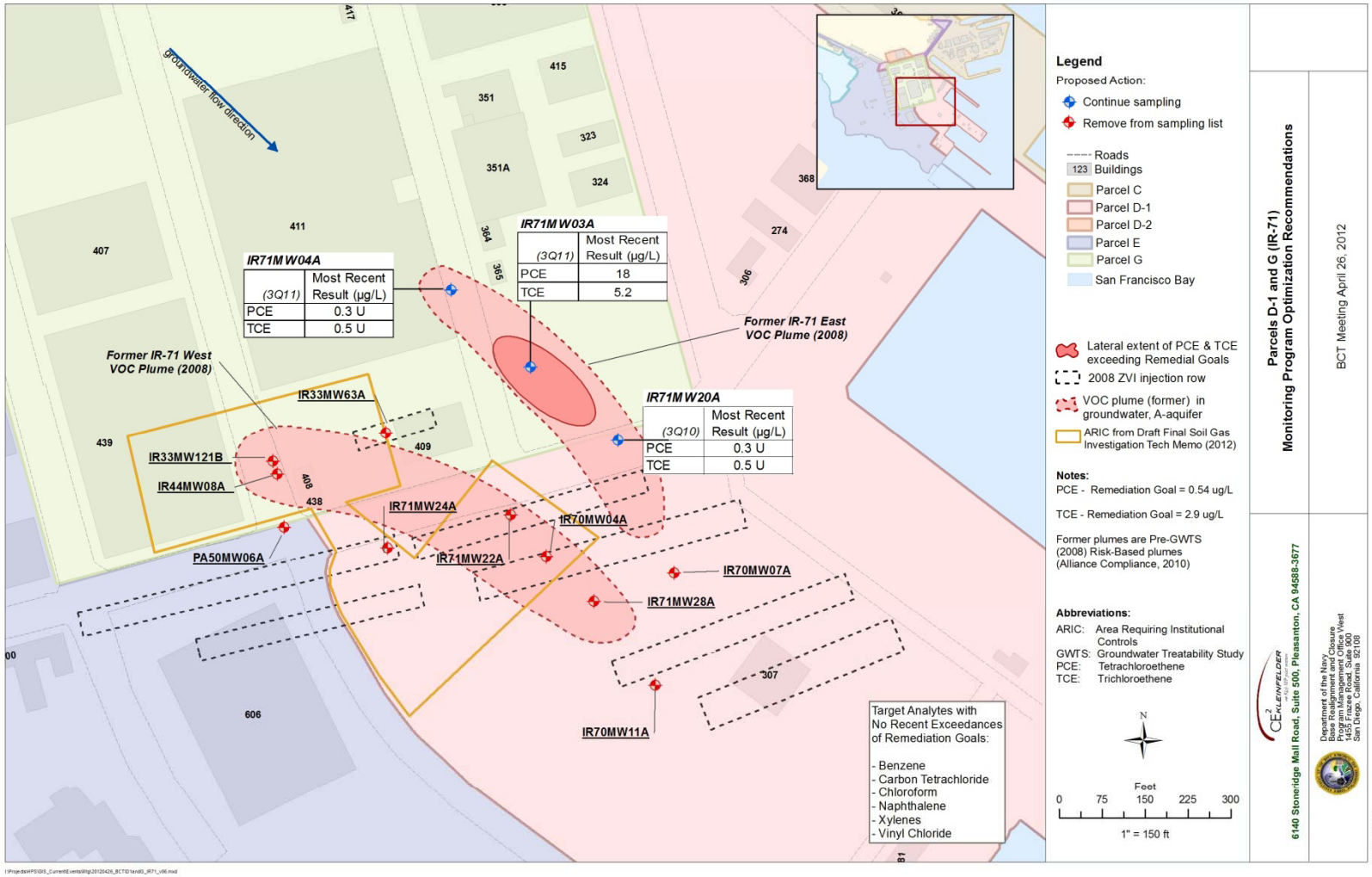
Summary of Recommendations: IR-09 and IR-33 Plumes

- Discontinue analyses for COCs consistently below Remediation Goals and/or Trigger Levels:
  - Benzene, Chloroform, Carbon Tetrachloride, Hexavalent Chromium

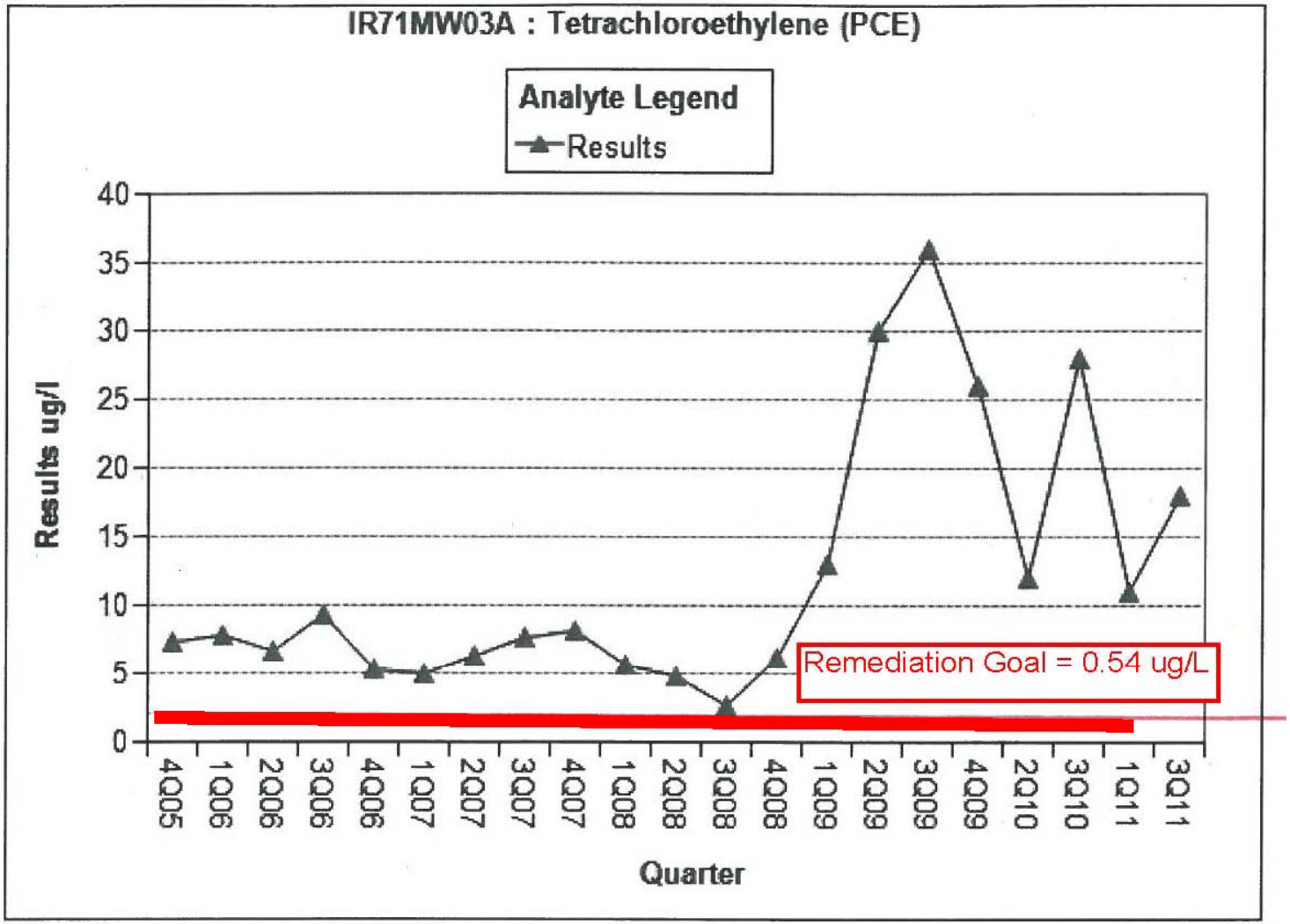
- Optimize PCE/TCE monitoring wellfield to reflect current IR-09 VOC plume configuration
  - Remove 7 wells from sampling list
  - Retain 2 wells (1 in source area and 1 upgradient)
  - Add 1 downgradient well that is not currently in sampling list

- Add cis-1,2-DCE and vinyl chloride analyses in PCE/TCE monitoring wells to identify potential degradation products

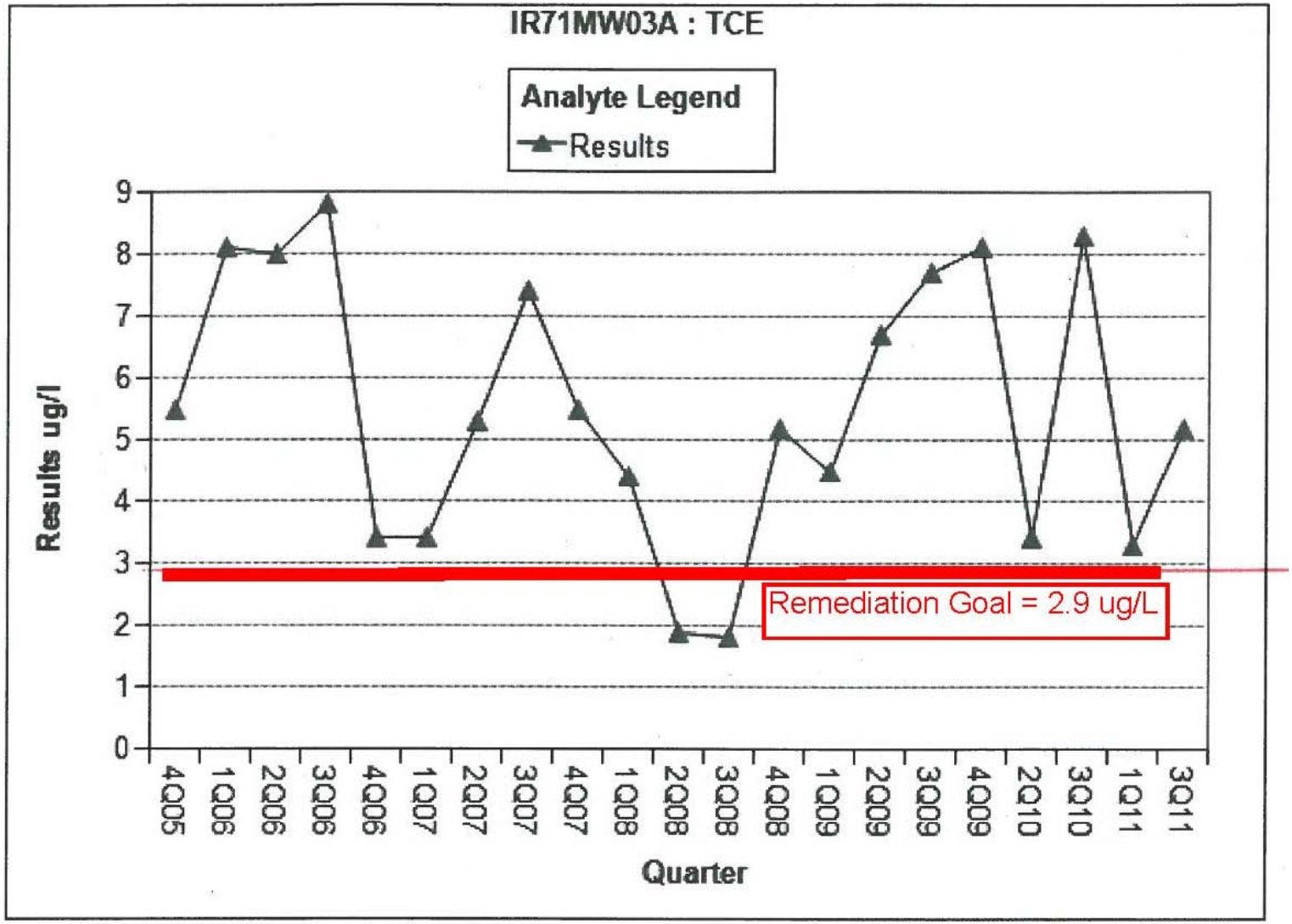
IR-71 Plumes


Groundwater flow direction
IR71MW04A
(3Q11) | Most Recent Result (µg/L)
PCE | 0.3 U
TCE | 0.5 U
IR71MW03A
(3Q11) | Most Recent Result (µg/L)
PCE | 18
TCE | 5.2
IR71MW20A
(3Q10) | Most Recent Result (µg/L)
PCE | 0.3 U
TCE | 0.5 U
Former IR-71 West VOC Plume (2008)
Former IR-71 East VOC Plume (2008)
IR33MW63A
IR33MW121B
IR44MW08A
IR71MW24A
IR71MW22A
IR70MW04A
IR70MW07A
IR71MW28A
IR70MW11A
PA50MW06A
Target Analytes with No Recent Exceedances of Remediation Goals:
- Benzene
- Carbon Tetrachloride
- Chloroform
- Naphthalene
- Xylenes
- Vinyl Chloride
Legend
Proposed Action:
Continue sampling
Remove from sampling list
Roads
Buildings
Parcel C
Parcel D-1
Parcel D-2
Parcel E
Parcel G
San Francisco Bay
Lateral extent of PCE & TCE exceeding Remedial Goals
2008 ZVI injection row
VOC plume (former) in groundwater, A-aquifer
ARIC from Draft Final Soil Gas Investigation Tech Memo (2012)
Notes:
PCE - Remediation Goal = 0.54 ug/L
TCE - Remediation Goal = 2.9 ug/L
Former plumes are Pre-GWTS (2008) Risk-Based plumes (Alliance Compliance, 2010)
Abbreviations:
ARIC: Area Requiring Institutional Controls
GWTS: Groundwater Treatability Study
PCE: Tetrachloroethene
TCE: Trichloroethene
N
Feet
0 75 150 225 300
1" = 150 ft
Parcels D-1 and G (IR-71)
Monitoring Program Optimization Recommendations
BCT Meeting April 26, 2012
6140 Stoneridge Mall Road, Suite 500, Pleasanton, CA 94588-3677
Department of the Navy
Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108

Time-Series Plot of PCE in Well IR71MW03A



Time-Series Plot of TCE in Well IR71MW03A



Summary of Recommendations: IR-71 East VOC Plume

- Discontinue analyses for COCs consistently below Remedial Goals and/or Trigger Levels:
  - Benzene, Chloroform, Carbon Tetrachloride, Naphthalene, Xylenes, Vinyl Chloride (IR33MW121B only)

- Optimize PCE/TCE monitoring wellfield to reflect current plume configuration
  - Retain 3 wells (1 in source area, 1 downgradient, 1 upgradient)
  - Add cis-1,2-DCE and vinyl chloride analyses in PCE/TCE monitoring wells to identify potential degradation products
  - Remove 1 well from sampling list (retained downgradient well is sufficient to monitor leading edge of plume)

Summary of Recommendations: IR-71 West VOC Plume

- Optimize PCE/TCE monitoring wellfield to reflect current conditions:
  - Remove all 9 wells from sampling list (no COCs present above Remediation Goals or Trigger Levels)

What's next?

- May 2012: Submit Technical Memorandum presenting optimization recommendations for Parcels B, D-1, G, and UC-2
- June 2012: Finalize the Technical Memorandum
- July-August 2012: Conduct 3Q2012 semiannual sampling event, incorporating BCT-approved revisions
- November 2012: Document changes to the sampling program in the semiannual groundwater monitoring report